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ABSTRACT

REALISTIC is an acronym based upon the three literacy skills areas studied--REAding, LIStening, and ArithmeTIC. The general objectives of the project are: (1) to provide information concerning the demands for reading, listening, and arithmetic skills in several major military occupational specialties (MOSS), and (2) to provide information and suggestions for reducing discrepancies between personnel literacy skill levels and the literacy skill levels required by the job. Two different approaches are taken. In one, the performance of job incumbents on reading, listening, and arithmetic tests is compared with their job performance as rated by supervisors and as indexed by job knowledge tests and job sample tests. In the second, identification is made of job-related reading tasks in a set of MOSS representative of mechanical, clerical, and service occupations. Findings include: (1) For low aptitude men, a higher level of reading ability is associated with a greater tendency to use reading materials; (2) The greater the gap between reading ability and the difficulty level of printed materials in an occupational speciality, the less tendency there is for readers of any level to use the materials. (CK)

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Project REALISTIC: Determining Literacy Demands of Jobs

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Prefatory Note

The research reported in this paper was performed under Work Unit REALISTIC, Determination of Reading, Listening, and Arithmetic Skills Required for Major Military Occupational Specialties, at the Human Resources Research Organization Division No. 3, Presidio of Monterey, California. One of the objectives of the research was to develop guidelines and methodologies for reducing discrepancies between personnel skill levels in reading, listening, and arithmetic, and levels of these skills required by the job.

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Project Realistic: Determining Literacy Demands
of Jobs -- Thomas C. Sticht and Richard P. Kern

PROJECT REALISTIC: DETERMINING LITERACY DEMANDS OF JOBS

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Human Resources Research Organization[1]

The decade of the sixties witnessed the large scale participation of the Federal Government in the education and training of many hard-to-employ youth. The Manpower Development and Training Act of 1962 promulgated many programs to upgrade the education and skill levels of citizens from all walks of life, but with emphasis upon underprivileged youth. The Job Corps represents one such program of Federally sponsored training and education.

In 1966, in keeping with the policy of Federal involvement in up-grading the manpower base of the nation, the armed services initiated PROJECT 100,000. Under this project, the armed services joined with other Federal Agencies in the war against poverty by admitting men who were previously disqualified for service because of low mental aptitude or, in fewer cases, deficient health standards.

Among the factors leading to the implementation of PROJECT 100,000 was a growing conviction ". . .that the prime reason many men "fail" the aptitude tests given at the time of induction is simply that these tests are geared to the psychology of traditional, formal, classroom, teacher-paced instruction."[2] And that

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"...these tests inevitably reflect the cultural value-systems and verbal patterns of affluent American Society. That is why so many young men from poverty backgrounds do poorly in the test. It is not because they do not possess basic – and perhaps even brilliant – intelligence; but, simply because of their cultural environment is so radically different from that assumed by the test designers."[3] For these reasons, it was felt that many potentially trainable men were being "screened out" of the armed services, and hence being denied the education, job skill, and health benefits of the services, for reasons of past failure, rather than being "screened in" for future development and accomplishment.

A Question of Literacy

With the implementation of PROJECT 100,000, it was anticipated that there would be an influx of many men of marginal literacy into the services. This was confirmed by statistics (1968) which indicated that thirty-one percent of a sample of 46,000 PROJECT 100,000 men read at or below the 4th grade level of ability. Some sixty-eight percent of these low aptitude men read at or below the 6th grade level of ability.

Because of the low reading skills of many of the PROJECT 100,000 men, there was concern among manpower specialists that many of the "new standards" men might be assigned to jobs wherein the demands for reading skills might far exceed the ability of the men, and possibly lead to job failure. To reduce this possibility, information about the literacy demands of military jobs was needed. Such information is valuable for decision making regarding classification of men in job areas, for deciding upon minimal levels required in adult basic education to render a person qualified for a given job, and for determining whether the literacy requirements of jobs might be altered through the redesign of reading materials, provision of audio materials, etc. Such redesign of materials could possibly reduce entrance requirements in literacy skills so that persons deficient in such skills could be effectively utilized, perhaps while receiving training to improve their literacy skills, and thus prepare themselves for higher level job positions.

Project REALISTIC

To obtain information concerning the literacy demands of

military jobs, Project REALISTIC was initiated. REALISTIC is an acronym based upon the three literacy skill areas studied – *REA*ding, *LIS*tening, and Arithme*TIC*. The general objectives of Project REALISTIC, which is currently in progress, are (1) to provide information concerning the demands for reading, listening, and arithmetic skills in several major military occupational specialties (MOSs), and (2) to provide information and suggestions for reducing discrepancies between personnel literacy skill levels and the literacy skill levels required by the job.

In Project REALISTIC, two different approaches for determining literacy demands of military jobs are being taken. In one approach we are comparing the performance of job incumbents on reading, listening, and arithmetic tests with their job performance as rated by supervisors and as indexed by job knowledge tests and job sample tests. The latter are tests in which men perform job activities under standard conditions, e.g., a cook prepares a jelly roll, a mechanic repairs a broken vehicle. From comparisons of performance on the literacy tests and job performance evaluations we hope to identify literacy skill levels adequate for performing at various levels of job proficiency. This approach and the data obtained with it will be discussed in a future report.

In our second approach for evaluating literacy requirements of different military jobs, we are identifying job-related reading tasks in a set of MOSs (Military Occupational Specialities) representative of mechanical, clerical, and service occupations. Reading performance tests are being constructed to represent the job reading tasks. When these job-related reading tests are completed, we will determine the relationships between performance on the job reading tests and standardized reading tests normed to reflect school grade reading achievement levels. By this means we hope to gain an indication of reading skill levels adequate for performing various job reading tasks.

In the remainder of this paper, we will discuss some of our findings obtained in the course of developing job-related reading tasks. Because our work is still in progress, final outcomes cannot be presented. However, there are some findings available which are of interest for what they reveal about reading behaviors in non-school settings, and how these behaviors vary in relation to the reading ability of the personnel and the reading materials they encounter on the job. These findings are reported below.

Method

Subjects

To identify job reading tasks we followed a procedure which involved the determination of the type of reading materials used by men in the target MOSs, and how they used this material. To do this, we developed a structured interview which was administered to men in three different MOSs at their job locations at Fort Ord, California, or Fort Carson, Colorado.

The three MOSs studied were General Vehicle Mechanic (63C), Unit and Organizational Supplyman (76Y), and Cook (94B). These jobs, all Army MOSs, were selected for study because: (1) they have a degree of generality across the military services, and they also have civilian counterparts; (2) these MOSs represent a wide range of military skill areas (e.g., Technical, Mechanical, Clerical, Service) and literacy and arithmetic requirements as provided in Army documents similar to the Dictionary of Occupational Titles; and (3) these MOSs receive fairly large numbers of lower aptitude men, and adequacy of literacy and arithmetic skills is of special concern for these men.

Our original research plan, subsequently modified, called for selecting men for interviewing on the basis of three criteria: their mental aptitude as indexed by the Armed Forces Qualification Test (AFQT), their total months of job experience in the MOS duty position, and reading ability. The latter was assessed by means of the Survey of Reading Achievement, Junior High Level, California Test Bureau. According to this paradigm, interviewees were to be selected to form two levels on AFQT (low aptitude men with percentile scores of thirty or below, and higher aptitude men with percentile scores thirty-one and above and averaging near sixty-five); three levels of job experience (0-8, 9-18, and 19 months or more), and three levels of reading achievement test scores (reading grade levels 4-6.9, 7-8.9, and 9.0 and over.) Table 1 shows the resulting 2 X 3 X 3 matrix which results from combining these three variables.

The Cell entries in Table 1 represent the number of men in each MOS interviewed to date in that particular sub-category. We have experienced considerable difficulty in finding higher aptitude individuals at the low reading achievement level. And, as would be expected, another problem was finding individuals at the high

TABLE 1

Criteria Used in Selecting Job Incumbents for Interview in the Readership Study. (Cell entries indicate number of men interviewed for that subcategory)

MENTAL APTITUDE CATEGORY

Reading Grade Level	MOS*	LOW			HIGH		
		TIME ON JOB (MONTHS)					
		0-8	9-18	19+	0-8	9-18	19+
4 - 6.9	63C	9	11	7	5	1	0
	76Y	1	1	1	1	0	0
	94B	0	11	0	0	6	0
7 - 8.9	63C	7	9	14	10	8	13
	76Y	1	1	2	0	0	3
	94B	0	5	2	0	6	0
9.0+	63C	5	5	3	8	7	15
	76Y	0	0	0	4	2	1
	94B	0	0	0	4	3	1

*Military Occupational Specialties: General Vehicle Mechanic - 63C; Unit Supplyman - 76Y; Cook - 94B.

reading level who, at the same time, were low aptitude on the AFQT. Difficulties in filling these cells were not unexpected, of course, since we have found that correlations between AFQT and reading achievement scores range around .60 to .70.

As the table indicates, we have experienced some difficulty in obtaining supplymen and cooks for interviewing, and hence, at the time, many cells are empty. All told we have interviewed 137 mechanics, 38 cooks, and 18 supplymen. At the present time we are in the process of interviewing additional cooks and supply personnel. But the time and expense of conducting on-the-job interviews have made it necessary to change our original paradigm. Presently we are obtaining a total of ten interviews for men in the three reading categories (4-6.9, 7-8.9, 9 +). In our future analyses, we will not attempt to sort men out on the basis of AFQT, or time on the job. The latter is being restricted to include only those men whose time on the job falls between 1-18 months. In this paper, however, we will present some data for mechanics which separates AFQT and reading ability factors. For the most part however, the separate effects of AFQT and reading ability will not be evaluated. The time on the job factor will also be ignored, since the data for the mechanics revealed little consistent effects due to time on the job, and the distributions for time on the job with supplymen and cooks are so restricted.

The Structured Interview

As indicated above, job-related reading tasks were identified by means of a structured interview administered to men in the target MOSs at their job locations. Table 2 summarizes the main items of information obtained with the structured interview. This included personal data, such as name, unit, etc. We also sought information about the kinds of job activities the men usually performed by asking him to describe a "typical" work day. There were three questions designed to obtain information about the listening, reading and arithmetic tasks that a man might perform on the job. For listening tasks, the man was asked to give five instances when he has asked somebody for job-related information in the last month or so. Probing was continued until the man said he couldn't think of any other such instances.

A procedure similar to the foregoing was used to identify reading tasks. The man was asked to give five examples of times

TABLE 2

Structured On-the-job Interview
To Identify Job-related Literacy Materials

Personal Data (Name, Unit, etc.)

Describe Typical Work Day

Five Examples of the Use of Information Sources
Other Than Printed Materials

Five Examples of Use of Printed Materials

Obtain the Materials

Locate the Exact Page Referred to

Five Examples of the Use of Arithmetic

Ways to Modify Printed Materials to Make Them
Easier to Use

during the past month when he had used printed materials in connection with carrying out a job. In each case he was asked to describe the job he had been performing and what information he has been seeking when he went to the printed material. Then he was asked to go get the manual and locate the exact page he had used. He was then asked to show the interviewer the specific parts of the material he had used.[4] After obtaining as many citations of the use of printed materials as possible, up to a maximum of five, which most men were unable to report, we asked for five such examples of the use of arithmetic. We found little use of arithmetic.

We also solicited ways to modify materials to make them easier to use, but most men reported them to be satisfactory – even though they often couldn't use the materials they brought to us!

Results

From the interview data we have extracted a series of findings for this report which concern the nature of the reading materials used by men in the three MOSs, the extent to which men in these MOSs use these materials, the extent to which men in these MOSs tend to rely more upon listening sources rather than reading sources for job-related information, and how these relations vary as a function of reading skill level.

Readability of Job-Related Printed Materials

One of the questions of interest to us concerned the reading difficulty levels of the reading materials cited by the men as having been used in conjunction with their job activities. To determine these difficulty levels, copies of the publications cited were obtained. For the Mechanics' (63C) and Cooks' (94B) MOSs, copies of publications which were cited five or more times were obtained. For the Supply (76Y) MOS, where there were few publications cited, we obtained a copy of the most frequently cited reference. In addition, we obtained copies of a number of other publications which were reported by supply sergeants to be of importance and in general use in the supply field.

To assess the reading difficulty levels of the job publications, we used the modified Flesch readability formula developed by Farr, Jenkins, and Paterson (1951). The formula was applied to a ten

percent sample of the pages in each of the publications. For instance, if a publication contained 100 pages, every tenth page was included in the sample. Only those pages were used which contained at least one sample of a 100-word section of connected discourse. Thus, if the tenth page contained only an illustration, or a recipe, one of the adjacent pages containing a 100-word sample of discourse was evaluated.

For each publication the average grade level of difficulty was computed. The average of these averages was then computed for each MOS. Table 3 presents a summary of the readability analyses. This table shows the total number of publications and pages sampled in each MOS, the range of reading difficulty levels found over all pages and the average grade level of readability of materials in the MOSs.

The data of Table 3 show a wide range of difficulty levels for the materials in each MOS. Additional data indicated that of the 11 publications studied in the Supply MOS, eight had average readability scores of 16+, with the remaining three scoring between grades 13 - 16 (14.5) on the average. Next to Supply, the Mechanics' (MOS 63C) publications were most uniformly difficult with seven of the eight having an average readability score of 14.5. The cooks in MOS 94B cited the least difficult material. All of the six publications are recipe books designed, apparently, with the users in mind. As indicated below, it is in the Cooks' MOS that the materials more closely match the skill levels of the personnel.

Readability and Reading Ability

The averages in Table 3 are shown graphically in Figure 1. In this figure, the average grade level of readability of materials is indicated by the unfilled bars. Included also in Figure 1 is an indication of the average reading grade level scores of a sample of Army personnel working on jobs within each of the MOSs. These data were obtained in the course of our work, mentioned earlier, in which reading test scores are being correlated with job performance. In Figure 1, the reading ability data are provided separately for high aptitude (solid bars) and low aptitude (striped bars) men. The striped column at the right of Figure 1 labeled "New Standards" presents the median reading ability of 46,000 new standards men (i.e., assessed under PROJECT 100,000 with AFQT scores in the 10-20 range). The black bar labeled

TABLE 3

Readability Scores for Publications in
Three Army MOSs

MOS	Number of Publications	Number of Pgs. Sampled	Range of Flesch Readability Levels - (SGE)*	Average Readability (SGE)*
76Y Supplyman	11	64	8.5-16+	16+
63C Vehicle Mechanic	8	244	7.0-16+	14.5
94B Cook	6	100	6.0-14.5	9.0

*SGE = School Grade Equivalent

"Control," at the far right of Figure 1, presents the median reading ability of non-new standards men. These reading ability data are from a Department of Defense (1968) report which summarizes data concerning PROJECT 100,000. These reading scores were obtained using a different test (Metropolitan Achievement Test – Intermediate Level) than used in the present research to assess the skill levels of the men in the three MOSs (Survey of Reading Achievement, Junior High Level, California Test Bureau). The similarity of assessed reading skill levels obtained with the two different tests under widely differing circumstances suggests that the estimates of reading skills for each MOS presented in Figure 1 are accurate estimates.

Of particular interest in Figure 1 are the discrepancies between the reading ability of the personnel in a given MOS and the readability of the publications in the MOS[5]. If the readability formula provides even a roughly accurate index of the difficulty of the material, then Figure 1 suggests that personnel would have considerable difficulty in reading and comprehending the materials in MOSs 76Y (Supply) and 63C (Mechanic).

In general, the greater the gap between readability and reading ability, the less comprehensible the materials are likely to be for the man on the job (Sticht, 1970). It is also reasonable to suppose that the gap between the reading ability of the men in an MOS and the readability of materials may influence the extent to which men attempt to use job-related printed materials. Data bearing on the relationships between reading ability, readability of materials, and readership of materials, i.e., the extent of use of printed materials by men on the job, were also obtained by means of the on-the-job interview.

Readability, Reading Ability, and Readership

The questions of concern in the analyses to be described now deal with the readership of printed job materials. In other words, who reads the printed materials and to what extent they use them. As indicated earlier in describing the interview, each individual was encouraged to recall five different instances during the preceding month when he had used printed materials in connection with job duties. To reduce the data for presentation and analysis, the total number of printed citations given by men in a particular sub-category were expressed as a percent of the total number of

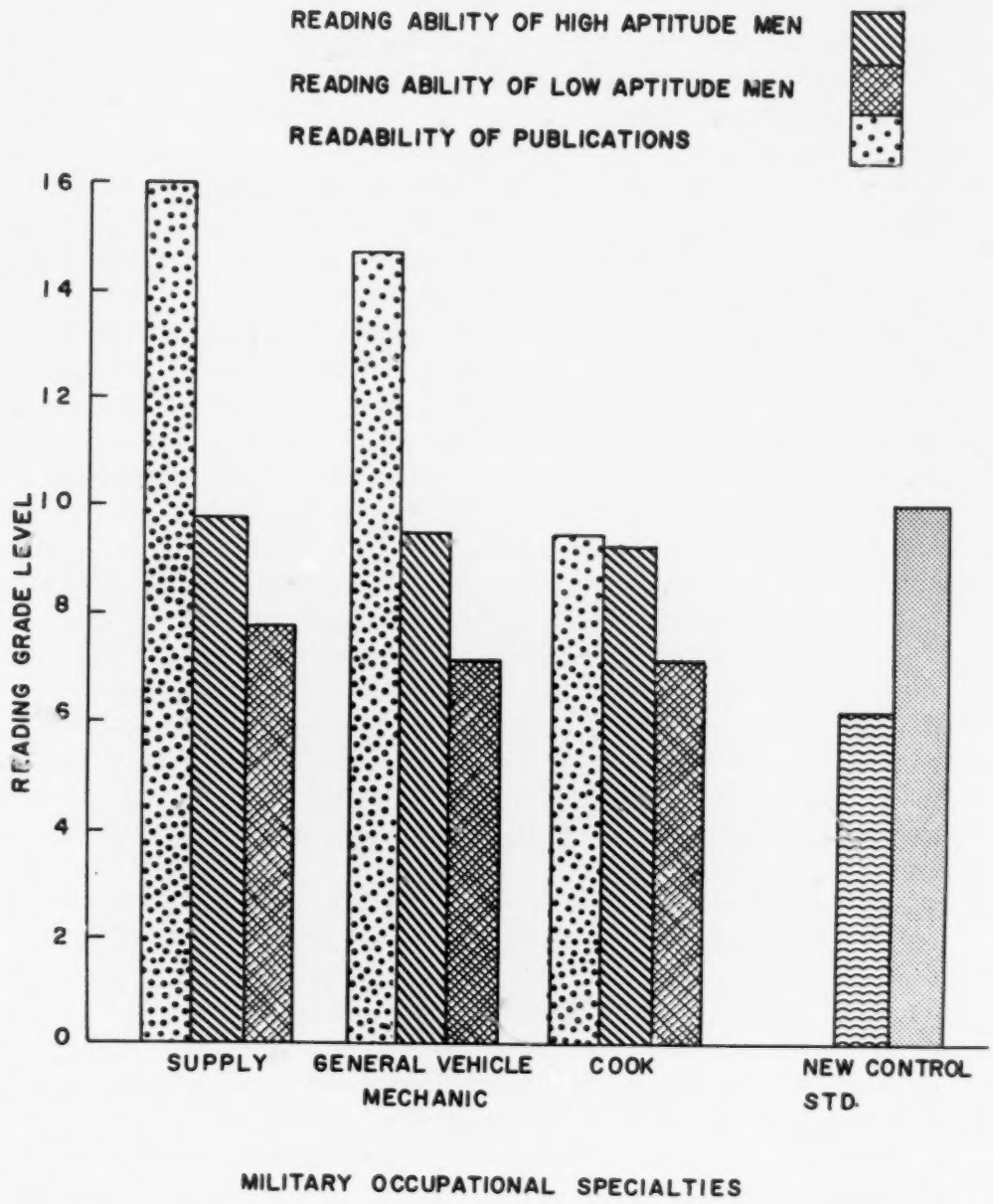

FIGURE 1

A comparison of the readability of publications in three job fields with the reading abilities of men working on those jobs.

citations which could have been given if each man had produced five citations. For example, looking at Table 1 under the low aptitude heading, for MOS 63C (Mechanics) there are twenty-seven men who read at the 4 -6.9 grade level (summing across the three experience levels). Thus, the total number of printed citations that could have been given by men in this category was (5) (27) = 135. However, these men actually cited only thirty-eight instances of the use of printed materials. Thus, their readership index is 38/135 = 28%. In all cases then, the readership indices have been computed in this manner.

In Figure 2 we have presented readership indices, computed as described above, for high and low aptitude men in the Mechanics' MOS (63C). In addition, these data have been sorted by reading levels (summing over time on the job). The data indicate that reported instances of the use of printed materials increased in number as reading level increased from low to high. This trend appears most pronounced among the low aptitude men. Simple analyses of variance were carried out separately for the low and high aptitude groups. These analyses support the interpretation of the trend shown in Figure 2 for the low aptitude men but not for the high aptitude men. Thus, the tendency for low aptitude men to use printed material on the job appears to be enhanced if they can read at or beyond the ninth grade level. For higher aptitude men, differences in reading achievement levels appear to parallel that of the low aptitude men, but not at a statistically significant level.

We have also examined the mechanics' data to determine if increased job experience influenced the extent of usage of printed materials. Separate analyses of variance for the high and low aptitude groups, summing over reading levels, were carried out. In neither case was there statistical (or graphical) evidence to support the notion of a simple, direct relationship between job experience and extent of usage of printed material.

The data of Figure 2 illustrate relations between reading ability levels and readership. It will be recalled, from Figure 1, that the readability of the publications in the target MOSs differed widely. It was of interest to us to determine if there were some relationships of readability of the publications in the MOSs to the frequency of citations (readership) of the publications by men of different reading levels. To examine this relationship, we computed readership indices for men in the three reading ability

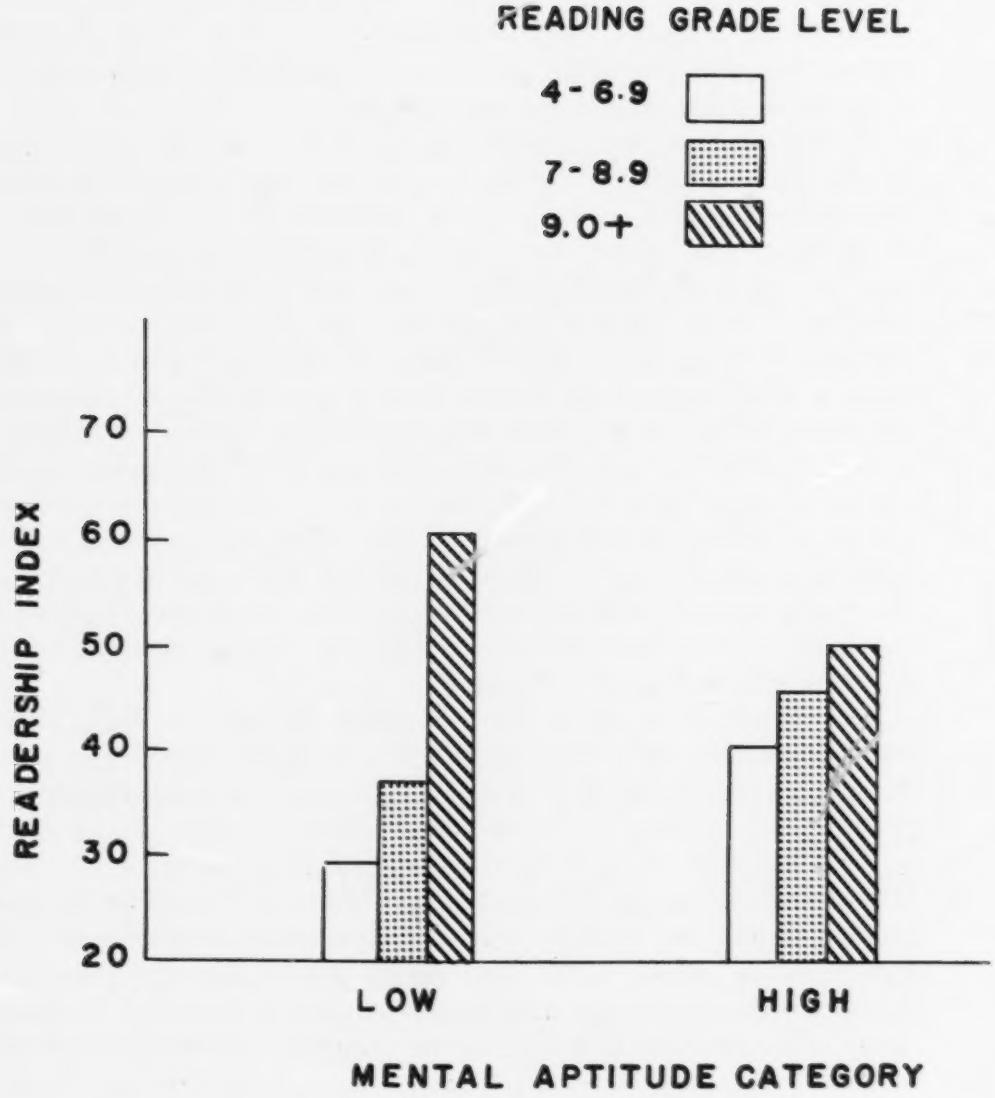

FIGURE 2

A comparison of the readership indices (percent of reading materials cited of a maximum possible for each group) for high and low mental aptitude mechanics and for three levels of reading ability.

groups in each MOS. In computing these indices, we summed over aptitude groups and job experience levels. Even so, as is determinable by study of Table 1, our N per reading category was small in the Supply (76Y) and Cook (94B) MOS. Thus, these data are to be regarded with caution, and considered more for their suggestive rather than definitive nature.

In Figure 3 we have plotted the average readability of materials in the three MOSs on the horizontal abscissa, and the readership indices on the vertical ordinate. In addition, we have presented the data for men in each of the three reading ability groups. Notable is the fact that the cooks, who cited the most readable (easiest) materials, also show the greater use of publications. The mechanic's materials are more difficult, and the readership indices in their MOS are seen to decline. The Supply MOS publications are the most difficult, and they have the lowest readership indices. It is also of interest that the readership score for the higher reading ability groups does not decrease as much as that for the lower ability readers. This suggests that the more difficult the reading materials are, the more the poor readers will tend to avoid it. In fact, they may tend to rely more upon listening sources (asking for information and receiving it aurally) than reading sources for job information, as Figure 4 suggests.

In Figure 4 we have plotted what we call an information modality index. What this provides is an indication of the extent to which men in an MOS tend to rely more on listening than on reading for getting job-related information. This index is calculated by first computing readership indices as outlined above. Then, for the same sub-groups, "listenership" indices are computed. It will be recalled that our structured interview solicited instances in which the men asked somebody for job-related information. Again, we attempted to obtain five such instances. Thus, a listenership index could be computed in the same manner as the readership index by presenting the number of listening citations actually reported as a percentage of the maximum number of citations possible.

To compute the information modality index, the listenership index was subtracted from the readership index for the group, and one hundred was added to get rid of negative numbers. In Figure 4, scores below one hundred mean that the different reading ability groups tended to rely more on listening for job information, and scores above one hundred mean that reading materials

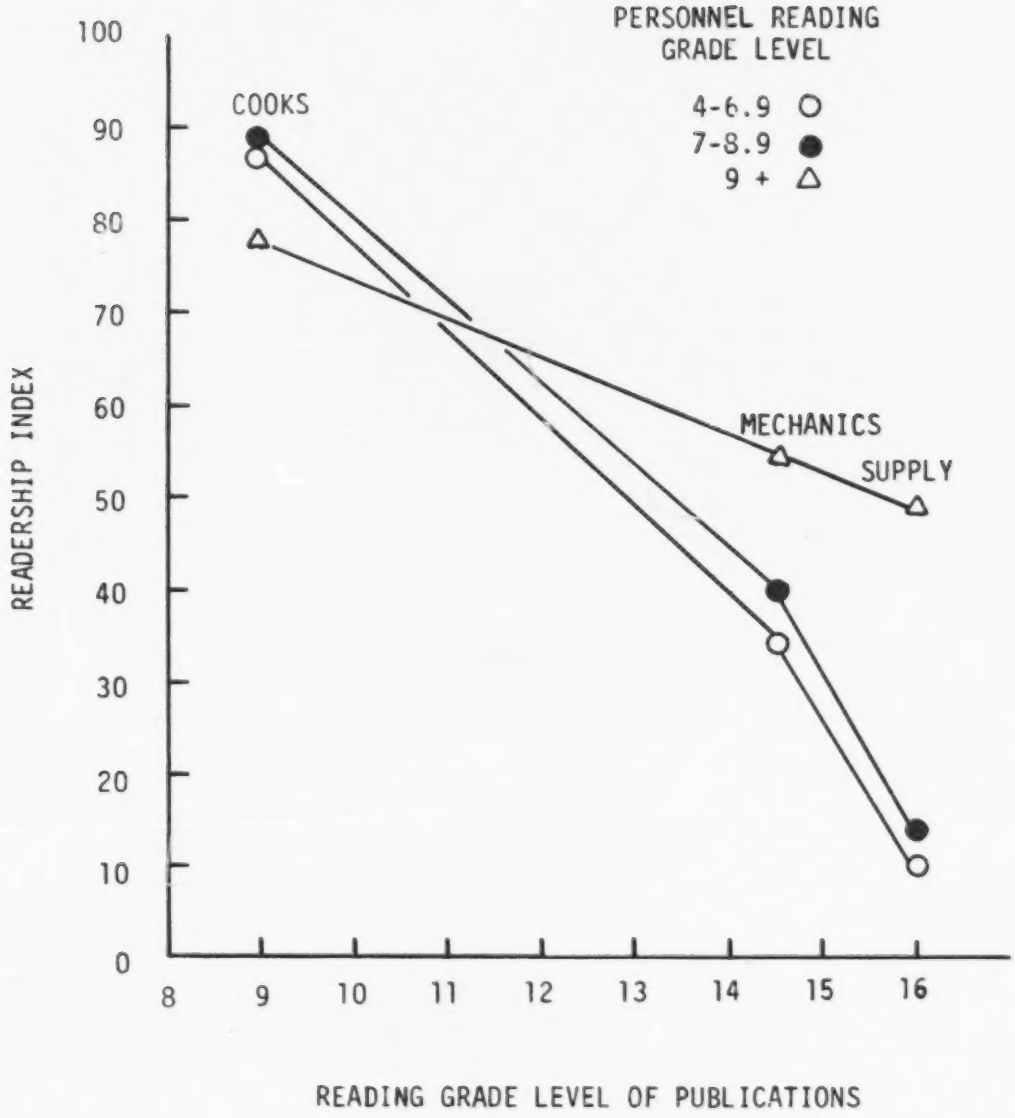

FIGURE 3

Readership as a function of the reading difficulty level of publications in three job fields (abscissa) and three levels of reading ability.

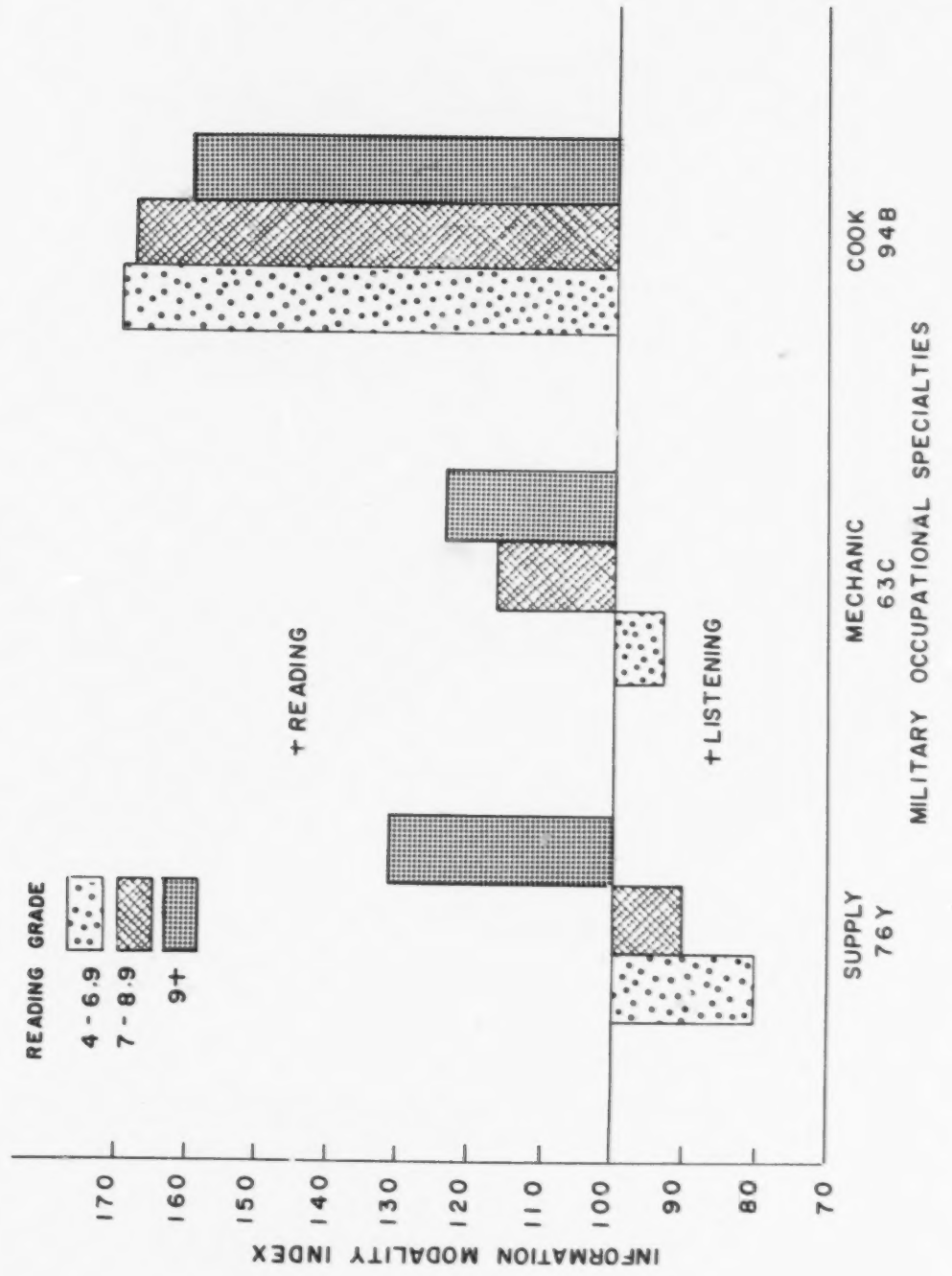

FIGURE 4

Tendency to rely more on reading (scores above the horizontal line) versus listening (scores below the horizontal line) for men of three levels of reading ability in three job fields.

were used more than listening sources for obtaining job-related information.

The figure indicates that the poorer readers in the Supply and Mechanics' MOSs tended to report more listening than reading sources, whereas in the Cooks' MOS this is not true. It should also be recalled that the Supply MOS has the most difficult printed materials, the Mechanics the next most difficult, and the Cooks the least difficult material. Hence the tendency to use listening sources appears related to both reading ability and the reading difficulty of publications in these MOSs.

Discussion

The data we have presented above range from those which rest on a fairly firm base (Mechanics) to practically no base at all (Supply). Small Ns invite cautious conclusions. Hopefully, the additional data to be obtained for cooks and supplymen will provide a more firm foundation for data interpretation.

Despite the limited data base, there is a remarkable degree of consistency and face validity in these data. The relationships observed among mental aptitude, reading ability, readability, readership and listenership appear to follow a very rational course. For low aptitude men, a higher level of reading ability is associated with a greater tendency to use reading materials (Figure 2). However, the greater the gap between reading ability and the difficulty level of printed materials in an occupational specialty (Figure 1), the less tendency there is for readers of any level to use the materials, although the higher reading ability men will use the materials more than the less able readers (Figure 3). And, if the job materials are quite difficult, and the man can't read very well, he will tend to rely more on getting information from others, rather than from reading the job materials (Figure 4).

If we permit ourselves to be seduced by the rational system of interrelated findings for a while (ignoring for a moment that the relationship may be one of infidelity), the import of these data for decisions regarding steps to be taken to reduce the likelihood of job failure for poor readers can be entertained. What is the import? It seems to be this: If there is a desire to have men use more printed materials on the job, perhaps to ensure better job performance, as suggested by research by Vineberg (1969), then the present data on readability, reading ability, and readership

across the three MOSs suggest that this might be accomplished both by improving literacy skills of the men and by the redesign of reading materials.

Furthermore, the present, limited, data suggest that greater gains in readership are to be expected from the redesign of materials than from increasing the literacy skills of men. In fact, one wonders if perhaps the materials cited by the cooks are not simple, by design, because cooking is so directly related to the health and morale of servicemen, that high standards must be ensured. This assurance may be accomplished by providing printed materials designed to facilitate the cooks' use of them. Thus, we are raising the possibility that the nature of the job the man performs may have influenced the production of printed materials.

For another example: the supplyman deals with property, and property costs money, and money means accountability. Thus, the Supply manuals deal in large part with quasi-legalistic matters and are written at a high level of difficulty. Perhaps the difficulty level of the manuals, in turn, ensures that only higher aptitude men with greater reading skills will move into positions in which supply manuals are used extensively. In fact, an examination of our interview data reveals just that. Men who cited the use of manuals were in positions which demanded more such use, while the lower reading ability men were performing more menial, mechanical jobs. The point of interest is whether, through the redesign of the printed materials of the Supply MOS, more men from the lower reading levels could not perform more responsible jobs.

Identifying Job-Related Reading Tasks

It is with the foregoing problem, i.e., the problem of getting lower ability men into more responsible jobs, that REALISTIC is, in its most general objective, concerned. We are attempting to examine reading requirements of jobs in new and imaginative ways, so that recommendations for redesign of job materials, job restructuring, or remedial training geared at job-related reading skills can be made. The data we have reported herein have been obtained in the pursuit of our primary goal of identifying job-related reading tasks. The structured interviews have provided us with samples of materials used by men on the job and examples of the types of information they were trying to derive from the materials. We are interested in using the relationships found

between the type of information sought by the men and the type of content (along with type of format) contained in the materials to describe different job reading tasks.

The general notion of job reading tasks that we are using here can be expressed by contrasting two examples of the use of different printed materials to obtain the same information. (For a more detailed discussion of the development of job-reading tasks seen Kern, Sticht, and Fox, 1970; Sticht, Kern, Caylor, and Fox, 1970.) In the first example, an individual obtains the gap specifications for a spark plug (Type of Information Sought: Standards and Specifications) from the context of narrative style material oriented towards describing the functioning of the ignition system (Content Type: Functional description, narrative format). In contrast, consider the example of an individual who obtains the same information (Standards and Specifications) from a tabular display of ignition system specifications (Content Type: Standards and Specifications, tabular format). These two individuals are performing job-related reading tasks which differ in nature. These two tasks quite likely require different reading skills and behaviors and probably also differ in difficulty if assessed by a performance test.

Our studies of the performance of different reading ability groups on the various reading tasks we are identifying will, we believe, result in knowledge directly relevant to the problem of accurately estimating reading skill requirements for jobs. Hopefully, some of the information and methodology (or modifications thereof) being developed in Project REALISTIC may find applications in civilian occupational settings. There is clearly a need (Wiener, 1968) for the Nation's businesses to re-examine their literacy skill requirements in the light of actual job demands for such skills and to consider the redesign of job materials, where possible, to facilitate performance by lower skilled personnel. Such an approach to matching men to jobs represents a positive application of psychometric methods in industry in that it is oriented towards getting people into jobs, rather than keeping them out.

NOTES

(1) The research reported in this paper was performed by HumRRO Division No. 3 (Recruit Training), Presidio of Monterey, California, under Department of the Army contract with the Human Resources Research Organization. The contents of this paper do not necessarily represent the official opinion of the Department of the Army.

(2) Address by Robert S. McNamara before the Veterans of Foreign Wars, New York, August 23, 1966.

(3) Op. cit.

(4) At times these requests appeared to surprise many of the men, and we observed, informally, several instances in which men took 15-20 minutes to locate a page, and sometimes they failed to locate it at all! This seemed to result, at times, from the difficult indexing system of some publications.

(5) It is recognized that the metric systems underlying the readability and reading ability measures are not the same, and, strictly speaking, the two scales should not be depicted on the same ordinate. Nonetheless, this manner of presentation, when regarded with proper caution, dramatizes the differences between materials and men.

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